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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,696	12/31/2001	Joshua J. Malone	TI-29278	4951

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EXAMINER

THOMAS, BRANDI N

ART UNIT PAPER NUMBER

2873

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/036,696

Applicant(s)

MALONE, JOSHUA J.

Examiner

Brandi N Thomas

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 16-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 8-15 and 22-36 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☒ Other: *Detailed Action*.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-7 and 16-21 are drawn to a package device and method of forming a package device, classified in class 359, subclass 247.
 - II. Claims 8-15 and 22-29 are drawn to a semiconductor package and method of forming a semiconductor package, classified in class 359, subclass 248.
 - III. Claims 30-36 are drawn to a display device, classified in class 359, subclass 291.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I, II, and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because it would not further burden the search. The subcombination has separate utility such as attaching a semiconductor.

3. During a telephone conversation with Charles A. Brill on 9/24/03 a provisional election was made with traverse to prosecute the invention of a package substrate, claims 1-7 and 16-21. Affirmation of this election must be made by applicant in replying to this Office action. Claims 8-15 and 22-36 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imanaka et al. (4954480) in view of Farrier et al. (4782028).

Regarding claims 1, 2, and 16, Imanaka et al. teaches a method of forming a package substrate, the method comprising: providing sheets of substrate layers; forming metalized patterns on at least one of said sheets; laminating said sheets to form said package substrate (col. 4, lines 28-51) except that it does not show an cavity. Farrier et al. shows that it is known to provide a cavity formed in the substrate having a floor defining a reference plane for providing a thinned region therein (col. 2, lines 19-20). Therefore it would have been obvious to someone of ordinary skill in the art at the time the invention was made to combine the teaching of Imanaka et al. with the cavity of Farrier et al. for the purpose of providing a thinned region therein (col. 2, lines 19-20). Further regarding claim 2, Farrier et al. further discloses, as in figure 3, the cavity surrounded by substrate walls.

Regarding claims 3-4 and 17-18, Imanaka et al. discloses, as in figures 1 and 2A, wherein said laminating said sheets comprises laminating said sheets to form a package substrate, said sheets shaped to expose regions of said reference plane to a top and bottom surface.

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Regarding claim 5, Imanaka et al. discloses wherein said forming metalized patterns on at least one of said sheets comprising forming metalized patterns on at least one of said sheets to provide electrical connection throughout the sheets of the substrate except that it does not specifically disclose an electrical interconnection with the cavity. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide an electrical connection between the cavity and an external surface of said package substrate this being reasonably based upon the material of the substrate being superconductive from the metalized layer (col. 4, lines 33-42).

Regarding claim 6, Imanaka et al. discloses wherein said providing substrate sheets comprising: providing ceramic substrate sheets (col. 4, lines 14-27).

Regarding claim 7, Imanaka et al. discloses the claimed invention except for plastic substrate sheets. It would have been obvious to one having ordinary skill in the art at the time the invention was made make the substrate sheets of plastic, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. In re Leshin, 125 USPQ 416.

Regarding claims 19-21, Imanaka et al. discloses said package substrate formed of a laminated series of layers, said regions formed by voids (disclosed as holes) in said layers on one side and the top and bottom side of said reference plane (col. 4, lines 30-33).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Lassen (4602318) discloses substrates for interconnecting components in which a filament is applied and affixes to a base in a pre-determined pattern.

Lebow et al. (4306925) discloses a printed circuit, which may be highly flexible in configuration and design.

Shigemi et al. (6350334) discloses a method of manufacturing a multi-layered ceramic substrate, which does not require dies.

Horiuchi et al. (5943212) discloses a ceramic circuit substrate which enable the external connection terminal to be reliably connected by reducing the thermal stress.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N Thomas whose telephone number is 703-308-3095. The examiner can normally be reached on 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 703-308-4883. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-4883.

BNT

BNT



RICKY MACK
PRIMARY EXAMINER